

Dimensions of types :—

	Skull—					
	Head and body.	Tail.	Blind foot.	Ear.	greatest length.	condylo-incisive length.
	mm.	mm.	mm.	mm.	mm.	mm.
<i>C. e. panjius</i>	230	230	50	23	57·5	52·3
<i>C. e. panjioli</i>	230	220	51	20	56·2	52·3
<i>C. e. pipidonis</i> . . .	218	198	47	20	54	50
<i>C. e. tacopijs</i>	205	203	49	18	54·4	49·6
<i>C. e. nakanus</i>	220	200	49	20	55	50·5
<i>C. e. mapravis</i> . . .	210	210	49	20	55	50·5
<i>C. c. telibius</i>	194	184	44	21	51	46
<i>C. moheius</i>	198	185	42	17	45	40·5
<i>C. m. mohillius</i> . .	192	174	42	18	48	43·5

Types :—

		B.M. no.	Original no.	Collected.
Of <i>C. e. panjius</i> .	♂	20. 12. 4. 36.	246.	20th Jan., 1918.
<i>C. e. panjioli</i> .	♂	20. 12. 4. 41.	435.	29th Jan., 1918.
<i>C. e. pipidonis</i> .	♀	20. 12. 4. 53.	8135.	3rd Feb., 1919.
<i>C. e. tacopijs</i> .	♂	20. 12. 4. 56.	8239.	16th Feb., 1919.
<i>C. e. nakanus</i> .	♂	20. 12. 4. 43.	505.	4th Feb., 1918.
<i>C. e. mapravis</i> .	♀	20. 12. 4. 51.	591.	10th Feb., 1918.
<i>C. c. telibius</i> .	♂	20. 12. 4. 67.	7779.	2nd Jan., 1917.
<i>C. moheius</i> .	♀	20. 12. 4. 72.	8102.	2nd Feb., 1919.
<i>C. m. mohillius</i> .	♂	20. 12. 4. 75.	8112.	3rd Feb., 1919.

All presented to the National Museum by the authorities of the Federated Malay States Museums.

IX.—*Descriptions of new Chalcidoid Flies from Coimbatore, South India.* By S. A. ROHWER, Honorary Custodian of Hymenoptera, U.S. National Museum.

THE new species of Chalcidoid parasites characterised in the following pages belong to the Elasmidæ and Eulophidæ and were submitted for identification by Ramakrishna Ayyar, acting Government Entomologist, Madras Agricultural College, Coimbatore, India. The collection, of which the species here treated formed a part, contained certain other Hymenopterous parasites, for which a report enumerating all species, except those belonging to the two families mentioned above, has already been published by Mr. A. B. Gahan*. Much of the labour connected with the identifying of the

* "Report on a small Collection of Indian Hymenoptera," Proc. U.S. Nat. Mus. vol. lvi. no. 2299, pp. 513-524 (October 20, 1919).

species described was done by Messrs. Gahan and Crawford, and the present writer, although entirely responsible for this contribution, has done little more than verify their identifications and prepare the following descriptions.

The drawings of the antennæ were made by the author from slide mounts, with the aid of a Leitz projection apparatus. The descriptions were prepared under a magnification of sixty diameters.

Family Elasmidæ.

Elasmus indicus, sp. n.

Female.—Length 2 mm. Face and lower part of front finely granular; vertex and occiput granular, but in addition with shallow, poorly defined, separate pits; lateral ocelli separated from the eye by a distance about twice as great as their diameter, and from the caudal margin of the head by a distance equal to their diameter; antennæ as in figure 1; pronotum with an indistinct transverse carina;

Fig. 1.



Elasmus indicus, Rohwer. Antenna of paratype *a*.

mesoscutum with close setigerous punctures, the hair black; scutellum somewhat dull, very finely reticulate; propodeum shining, more finely reticulate than the scutellum; abdomen polished, with long black bristles on the sides of tergites. *Æneous*; antennæ brown; scutellum with a faint purplish tinge; base of first tergite green; apical part of first and base of second tergites with a pale ferruginous band; apical tergites faintly purplish; legs black, the anterior pair beyond middle of coxæ, the intermediate pair beyond femora, and the posterior tibiæ and tarsi yellowish brown, with very conspicuous black bristles; wings subhyaline.

Male.—Length 1.5 mm. Agrees well with the female, except that the mesoscutum appears more scaly.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,978, U.S.N.M.

Described from seven females and one male received from

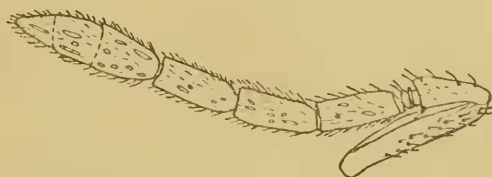
Ramakrishna Ayyar under his number 27 and labelled : "Parasitic on Coccids on Acacia. 18.i.17. Ramakrishna Collector." Antenna of paratype *a* on slide 885.

Elasmus nephantidis, sp. n.

Close to *Elasmus indicus*, Rohwer, but lacks the pale band on the abdomen, has white bristles on the mesoscutum, and different punctuation on the head.

Female.—Length 2.5 mm. Face finely reticulate ; upper part of front, vertex and occiput shining, finely reticulate, and in addition with scattered shallow punctures ; antennæ as in figure 2 ; ocellular line twice as long as the diameter

Fig. 2.



Elasmus nephantidis, Rohwer. Antenna of paratype *a*.

of a lateral ocellus ; ocello-occipital line subequal in length with the diameter of a lateral ocellus ; pronotum without a transverse ridge, sculptured like the mesoscutum ; mesoscutum with close setigerous punctures giving it a scaly appearance, the hair whitish ; scutellum finely reticulate ; propodeum polished ; abdomen shining, lateral bristles black. Æneous ; head, spot near tegula, propodeum, and base of first tergite greenish or with a greenish tinge ; apical third of first tergite faintly brownish ; scape yellowish, flagellum brownish ; legs yellowish, with conspicuous black hairs ; four posterior coxæ and femora (except basally) blackish ; wings subhyaline.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,979, U.S.N.M.

Described from six females received from Ramakrishna Ayyar under his number 34, and labelled as "Parasitic on *Nephantis serinopa* on Palm. 7.iv.14, 10.iv.14. P. S. Collector." Antenna of paratype *a* on slide 884.

Family Eulophidæ.

Pediobopsis locustivora, sp. n.

Differs in colour from *Pediobopsis spenceri*, Girault.

Female.—Length 1.25 mm. Head collapsed; vertex finely reticulate; scape slender, more than half the length of the rest of antenna; antenna beyond scape as in figure 3; mesoscutum subopaque, finely reticulate; axillæ and scutellum shining, very finely reticulate (much finer than the scutum), medianly the scutellum is almost without

Fig. 3.



Pediobopsis locustivora, Rohwer. Antenna of paratype *a*.

sculpture. Dark green; vertex and mesoscutum bright green; axillæ and scutellum with a bronzy-green lustre; antennæ brownish yellow; legs below coxæ white; wings hyaline; venation yellowish.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,980, U.S.N.M.

Described from five females received from Ramakrishna Ayyar under his number 23 and labelled: "Parasitic on Locustid eggs on Cordia Leaf. T. V. S. Collector. 25.vi.17, 27.vi.17." Antenna of paratype on slide 876.

Pleurotropis epilachnæ, sp. n.

Closely allied to *Pleurotropis foveolatus*, Crawford, which is parasitic on *Epilachna vigintioctopunctata*, but the sculpture of the scutum is somewhat coarser, the colour is green, and the bristle-like hairs white.

Female.—Length 1.5 mm. Face shining, laterally finely transversely lineate; clypeus polished; front and vertex reticulate; first joint of funicle distinctly longer than the following, the second and third subequal; club sharply pointed apically; lateral ocelli less than their width from caudal margin of head; pronotum polished, the anterior margin distinctly carinate; scutum coarsely reticulate, anterior lateral part with a tendency to form curved raised lines; axillæ finely reticulate; scutellum with rather coarse

raised irregular lines which curve and unite towards the apex giving the appearance at first glance of U-shaped striæ, mediaully with umbilicate punctures; propodeum polished, with two distinct carinæ which diverge posteriorly; abdomen polished, the petiole short, granular. Dark metallic green, even antennæ and legs; tarsi, except the dusky apical joint, clear white; wings hyaline, venation yellowish.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,981, U.S.N.M.

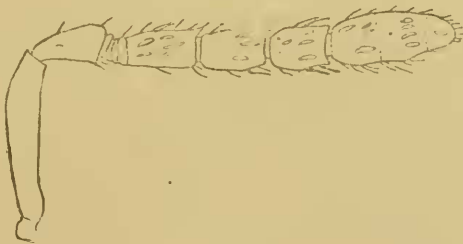
Described from ten females received from Ramakrishna Ayyar under his number 5 and labelled: "Parasitic on ♂ of *Epilachna*. Insectary. 14.viii.16."

Ceratoneura indica, sp. n.

Closely allied to the genotype, *petiolata*, but differs in antennal characters and to some extent in sculpture. In Girault's generic key* this species falls in *Ceratoneuropsis*.

Female.—Length 1.5 mm. Striæ of face of nearly uniform strength; frons and vertex subshining, granulato-lineate; interocellar line shorter than ocellocular line; a more or less distinct depression behind lateral ocelli; antennæ as in figure 4; pronotum transversely lineato-granular; meso-

Fig. 4.



Ceratoneura indica, Rohwer. Antenna of type.

scutum without an impressed median line, the surface finely transversely lineate; scutellum with the impressed lines very feeble and difficult to see, but certainly without a median one, the surface granular; propodeum shining, without distinct sculpture, the median groove distinct, wider anteriorly, lateral and posterior sulci distinct; petiole wider posteriorly, its length subequal with the caudal width; abdomen shining, acuminate from basal third; stigmal vein a little more than one-fourth as long as marginal; marginal

* Mem. Queensland Mus. vol. ii. 1913, p. 253.

and submarginal veins subequal in length. Black, antennæ and legs below coxæ pale brown, the tibiæ and tarsi somewhat yellowish; wings hyaline; venation very pale brown.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,982, U.S.N.M.

Described from a single female received from Ramakrishna Ayyar under his number 28 * and labelled: "From gall. 25.vi.13. T. V. R. Coltor." Right antenna on slide 882.

Genus TETRASTICHUS, Haliday.

In placing the following species the writer has used the genus *Tetrastichus* in a very much broader sense than certain other students. The present liberal interpretation of the genus, while perhaps not in accord with the modern conception of a genus, is preferred to the limiting of "genera" on such variable and uncertain characters as the number of ring-joints or the number of "club-joints." In both of these so-called characters there is much chance for error, and much depends on the preparation of the slide mount of the antenna. It is, however, not to be construed that the author believes that all of the segregates of *Tetrastichus* are synonyms. Some of them are undoubtedly valid, but, until they can be redefined by more reliable characters, it will only add to the present confusion by definitely assigning species to them. To show where each species would fall in the recent tabulations, a statement of the group to which it would run in the diagnosis of the genera of Tetrastichine Eulophidæ, given by Girault †, is added as a preface to each description.

Besides the species here described, the sending contained a single female specimen of a yellow species reared at the same time as *Tetrastichus coimbatorensis* and sent under the same number. This yellow species seems to be new, but more material is needed before reaching a decision.

Tetrastichus okawus, sp. n.

Belongs, according to the generic key by Girault, to *Quadrastichus*. Compared with the other Indian species this is more closely allied to *Tetrastichus coimbatorensis*, but, besides the antennal and colour characters, can easily be distinguished by the presence of a median line on the scutum.

* *Eurytoma dentipectus*, Gahan, and *Neanastatus pulchricorpus*, Girault, were received under the same number.

† Memoirs Queensland Mus. vol. ii. 1913, p. 249.

Female.—Length 1.5 mm. Head much shrunken, shining, without distinct sculpture or ridges; antenna as in figure 5; mesoscutum shining, finely longitudinally lineate, with a nearly complete, impressed, longitudinal line medianly; scutellum finely reticulate, the medial sulci nearly parallel, propodeum very short, without distinct sculpture, the median carina very short and broad; marginal vein a little

Fig. 5.



Tetrastichus okawus, Rohwer. Antenna of type.

longer than the submarginal; abdomen distinctly longer than head and thorax, narrow, acuminate apically. Dark metallic green; head below bases of antennæ, scape, pedicellum, tegulæ, and legs, except apical joint of tarsi, yellowish; flagellum brown; wings hyaline, with very sparse pubescence; venation very pale brown.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,983, U.S.N.M.

Described from five females (one type) received from Ramakrishna Ayyar under his number 21 and labelled: "From eumbu grains. V. R. Coll. 16.xii.16, 17.xii.16." Left antenna of type on slide 881.

Tetrastichus ayyari, sp. n.

If the indistinctly divided club is said to be three-jointed, this species runs to *Aprostocetus* in Girault's key. If the club is considered to be solid, and except under high magnification it appears so, it would fall in *Selitrichodelia*.

Female.—Length 1.75 mm. Head not shrunken, shining, very finely lineate, and without ridges or depression around ocelli; antenna as in figure 6; the antennal club sharply acuminate and, when highly magnified, indistinctly divided

into three parts, the apex with a slender spine-line projection; mesoscutum finely lineate, with a distinct, median, longitudinal sulcus on the posterior two-thirds; scutellum more coarsely lineate than the scutum, the median sulci nearly parallel; propodeum dull, finely coriaceous, with three feeble, median, longitudinal carinae, and basally with two faint, transverse, raised lines; abdomen shining, short (subequal in length with the thorax), almost spherical in dorsal outline;

Fig. 6.



Tetrastichus ayyari, Rohwer. Antenna of paratype *a*.

marginal and submarginal veins of subequal length. Uniformly black, with a greenish reflection on head and thorax; scape yellowish brown; legs, except anterior coxae and femora which are brownish, yellowish white; wings hyaline; venation yellowish.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,984, U.S.N.M.

Described from eleven females received from Ramakrishna Ayyar under his number 6 (or 9) and labelled: "Parasitic on ♂ of *Cholam chilo*. Insectary. 19.vii.14, 20.vii.14, 21.vii.14." Antenna of paratype *a* on slide 880.

Named for Ramakrishna Ayyar.

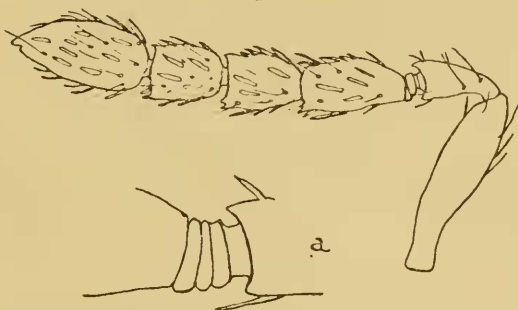
Tetrastichus isauci, sp. n.

In the generic tabulation given by Girault falls in *Tetrastichomorpha*, and there is more closely allied to *flava*, Girault, but differs in some details of colour and in the antenna.

Female.—Length 2.25 mm. Dorsal part of frons with a few widely scattered setigerous pits; a transverse ridge immediately behind the anterior ocellus and another immediately behind the posterior ocelli; the posterior ridge projects ventrally along the posterior margin of the eye; antenna as in figure 7; caudal margin of pronotum with a row of well-separated bristles; mesoscutum finely irregularly aciculate, with a longitudinal median sulcus posteriorly; scutellum large, its surface with irregular aciculations, laterally with a longitudinal grooved line, along which there are a few widely scattered bristles; propodeum short, its

surface with fine granulations, the median carina distinct, fureate caudad; abdomen longer than head and thorax, gradually narrowing to an acute apex. Yellow; antennæ dark brown; posterior surface of head, most of scutum, axillæ, and basal margins of second and following tergites yellowish ferruginous; legs yellowish, with coxæ darker, wings hyaline, venation yellow; bristles on thorax dark brown.

Fig. 7.



Tetrastichus isaaci, Rohwer. Antenna of type; a, ring-joints highly magnified.

Male.—Length: 1.5 mm. Agrees with above description of female, except that the apex and sides (nearly to the base) of the abdomen are blackish. Antenna slender, clothed with long hair, number of ring-joints not determined.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,985, U.S.N.M.

Described from four females (one type) and a single male allotype received from Ramakrishna Ayyar under his number 24, and labelled as reared from galls on "*Macrus arenaria*." Type and one paratype issued June 13, 1917, the other specimens issued June 11, 1917. Isaac collector. Right antenna of type on slide 877.

Tetrastichus nyemitawus, sp. n.

In the generic tabulation of Girault runs to *Aprostocoloides*, but the colour will distinguish it from any of the species placed in that "genus." If the mesoscutum is said to be without a median longitudinal sulcus (and there is only a depression), this species will run to *Trichaporooidella*, but it is readily separated from *coimbatorensis*, which also falls there, by the longer and more coarsely sculptured propodeum. The

propodeum of *Tetrastichus echthrus*, Crawford, is similarly punctured, but the lateral carinæ are different, as well as other parts of the body.

Female.—Length 3 mm. Head not shrunken, ocelli surrounded by a deep groove which extends laterally to the eye-margins; head shining, the surface finely lineate; antenna as in figure 8; pronotum and sides of the scutum lineate; median part of scutum reticulato-lineate; scutum with a median longitudinal depression, but not a sulcus; scutellum reticulate, the median sulci deep and parallel; propodeum more than half as long as the scutellum,

Fig. 8.



Tetrastichus nyemitavus, Rohwer. Antenna of paratype *a*.

covered with thimble-like punctures and with a well-defined median carina, the lateral carinæ weak; abdomen shining, subequal in length with the thorax, acuminate beyond the middle; marginal vein about twice as long as the submarginal. Bright green; head below the antennæ, scape beneath, and posterior and superior orbits narrowly testaceous; tegulæ and legs sordid whitish; wings hyaline; venation pale brown.

Male.—Length 2.5 mm. Similar to the female, except that the testaceous marks on the head are more extensive; antennæ slender, with very long bristles on the basal joints.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,986, U.S.N.M.

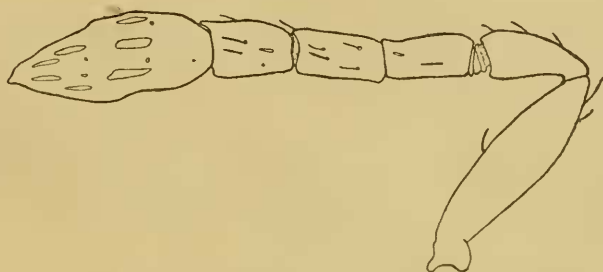
Described from six females (one type) and four males (one allotype), received from Ramakrishna Ayyar under his number 8 and labelled: "Parasitic on cholam stem-maggot. 8.viii.16 (five, including type and allotype), 7.vii.16, 9.vii.16. Insectary." Antenna of female paratype *a* on slide 878.

Tetrastichus coimbatorensis, sp. n.

In Girault's generic key runs to *Trichaporoidella*, and, while it agrees in general with the descriptions of the species assigned to this genus, differs from all of them by various colour-markings.

Female.—Length 1.30 mm. Head shrunken, without distinct sculpture; antenna as in figure 9; mesoscutum

Fig. 9.

*Tetrastichus coimbatorensis*, Rohwer. Antenna of paratype *b*.

shining, without a median longitudinal sulcus, under high magnification faintly aciculate; median longitudinal grooves of scutellum slightly converging posteriorly; propodeum short, shining, without distinct sculpture, the median carina feeble; abdomen subequal in length with head and thorax, acuminate beyond middle. Black with a bluish reflection; antenna dark brown, scape yellowish beneath; front of head below top of eyes, lower part of posterior orbits, lateral margins of pronotum, sides of scutum narrowly (broadening into a transverse spot posteriorly), posterior part of scutellum, metanotum, sides of pronotum posterior margin of tegula, and dorsal margin of mesepimeron lemon-yellow; legs yellowish white, with the tarsi dusky; wings hyaline; venation pale brown.

Paratypes show considerable variation in the extent of the yellow markings. In two specimens the abdominal sternites are yellow, but the markings of the thorax are practically the same as the type. In paratype *a*, however, the yellow of the thorax is much reduced, the pronotum (dorsally), the scutellum, and metanotum are black, and the spot on the posterior part of the scutum is reduced to a narrow line.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,987, U.S.N.M.

Described from seven females (one type) received from Ramakrishna Ayyar under his number 1 and labelled: "Parasitic on cholam gall-fly. Insectary. 10.viii.16, 7.viii.16." Antenna of paratype *b* on slide 879.

Euryscotolinx coimbatorensis, sp. n.

Differs in size and colour from *Euryscotolinx guttativertex*, Girault.

Female.—Length 2 mm. Head shining, without sculpture, except the intraocular area which is finely reticulate; ocelli in nearly an equilateral triangle; postocellar line slightly shorter than the ocellular line; scape subequal in length with the first two joints of funicle; funicular joints subequal in length; pronotum long, finely reticulate; scutum and scutellum shining, very finely reticulate; propodeum polished; abdomen subequal in length with thorax. Orange-yellow; flagellum, cloud around ocelli, propodeum, apex of scutellum, base and sides of tergites narrowly brownish; wings hyaline; venation yellowish.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,988, U.S.N.M.

Described from five females received from Ramakrishna Ayyar under his number 17 and labelled: "Parasitic on miner in leaves of lab-lab. Ramakrishna Collector. 25.vi.14, 26.vi.14, 23.vi.14."

Euplectrus leucostomus, sp. n.

The sculpture of the scutellum makes it easy to separate this species from the other Indian species.

Male.—Length 1.75 mm. Head, except for a small finely aciculate area in front of ocelli, smooth and polished; lateral ocelli separated from inner margin of eyes by a distance somewhat less than their greatest diameter; antennæ long, slender, scape shorter than first two funicle joints, funicle joints subequal in length; dorsal surface of pronotum smooth behind the transverse carina; mesoscutum reticulate, with a distinct, impressed, longitudinal line medianly; axillæ polished; scutellum, except the extreme sides, punctato-lineate; propodeum polished, the median furrow complete, broad; propodeal spiracle more than its width from lateral sulcus; longer spur of hind tibiæ as long as first two tarsal joints; petiole granular, nearly as long as broad; abdomen shining, glabrous. Black; head below antennæ, front along eye-margins to near top of eye, antennæ, large oval spot covering most of tergites (except

apical ones), and all of sternites yellowish white; legs entirely white; body-bristles white; wings hyaline, with white venation.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,989, U.S.N.M.

Described from three males received from Ramakrishna Ayyar under his number 31 and labelled: "Parasites on \oplus on Castor. C. S. No. 108/17-18. 5.xi.17. C. V. S."

Euplectrus euplexiæ, sp. n.

Closely allied to *leucostomus*, Rohwer, but the antennæ are shorter, the ocelli are smaller and much further from the eye-margins, and the sculpture of the mesoscutum is somewhat different.

Male.—Length 1.5 mm. Head polished, with a few fine aciculations on the front; ocelli small, widely separated from the eye-margins, the ocellular line longer than the interocellar line and two-thirds as long as the postocellar line; antennæ short, the scape as long as the first two funicle joints, funicle joints subequal in length; transverse carina on pronotum not sharply defined, behind it the pronotum is smooth; mesoscutum without a median line, irregularly reticulate; axillæ smooth; scutellum finely reticulate medianly, reticulato-lineate laterally; propodeum shining, median furrow distinct, complete; propodeal spiracle close to lateral sulcus; petiole granular, slightly longer than wide; abdomen polished; longer spur of hind tibiæ subequal in length with two basal tarsal joints. Black; head below antennæ, frons along eye-margins to near top of eye, antennæ, large spot on tergites occupying most of basal part and most of sternites yellowish white; legs entirely whitish; wings hyaline, with whitish venation; body-bristles pale brown.

Female.—Length 2 mm. Agrees with male, except for absence of marks on frons, the presence of a distinct yellowish tinge to legs basally, and in having the tergites yellowish dorsally, except for a transverse brownish band before apex.

Type-locality.—Coimbatore, South India.

Type.—Cat. No. 20,990, U.S.N.M.

Described from one male and two females received from Ramakrishna Ayyar under his number 10 and labelled: "Parasitic on *Euplexia conducta*. 8.xi.14. Ramakrishna Collector."